

Edison Demonstration of Spacecraft Networks (EDSN) Mission

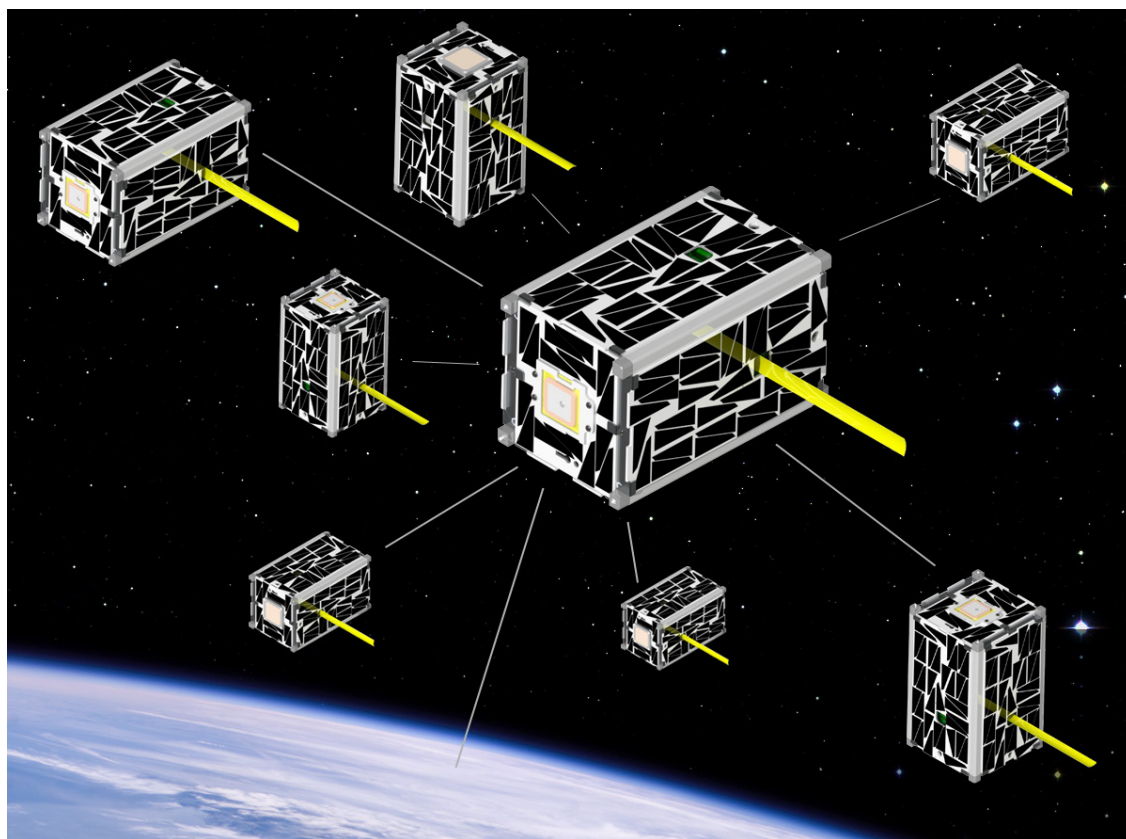
A Swarm of Advanced, Affordable, COTS-based Nanosatellites that Enable Cross-Link Communication and Multipoint Physics

NASA's Edison Demonstration of Smallsat Networks (EDSN) mission will launch and deploy a swarm of 8 cubesats into a loose formation approximately 500 km above Earth. EDSN will develop technology to send multiple, advanced, yet affordable nanosatellites into space with cross-link communications to enable a wide array of scientific, commercial, and academic research. Other goals of the mission include lowering the cost and shortening the development time for future small spacecraft.

Each EDSN nanosatellite is 1.5 cubesat units – about the size of a tissue box

– and weighs approximately 4 pounds (2 kg). Onboard each satellite is a competitively selected sensor payload which will activate on orbit and make distributed, multipoint space radiation measurements. A second smartphone payload will demonstrate the ability to run an app in the space environment. The EDSN swarm is scheduled to have a nominal 60-day operational period in orbit. The EDSN spacecraft are planned to be launched into space as secondary payloads on a launch vehicle from Kauai, Hawaii in late 2013.

EDSN will demonstrate advanced communications, including a network



EDSN spacecraft in swarm formation

that allows for data to be sent between satellites as needed. This technology has the potential to provide extremely flexible data correlation and distribution, simplify spacecraft operations, and accelerate data downlinks so that a satellite network could be rapidly reconfigured.

The launch of tens (or someday hundreds) of network-based satellites would enable an unprecedented amount of communications and computing capability in low Earth orbit from which the satellite industry, university researchers, and NASA scientists could benefit.

The EDSN project is based at NASA Ames Research Center, Moffett Field, Calif., and is funded by the Small Spacecraft Technology Program (SSTP) in NASA's Space Technology Mission Directorate at NASA Headquarters in Washington, DC.

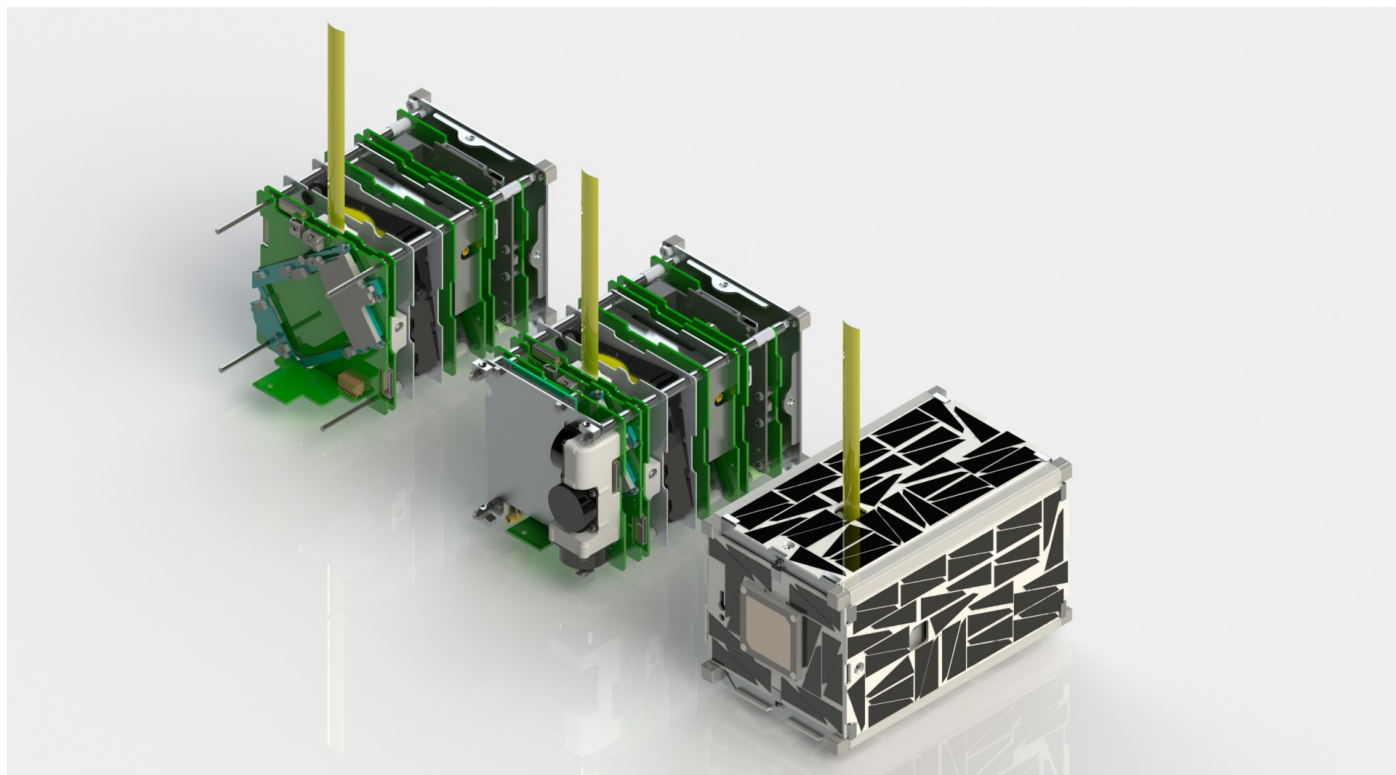
Other EDSN Project Partners include NASA Marshall Space Flight Center, Montana State University, and Santa Clara University.

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EDSN Spacecraft Assembly Sequence

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